Paper No. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte REINHOLD F. WIRTH and STANLEY J. LOBOWSKI

Appeal No. 1997-2566
Application No. 08/330,642

ON BRIEF

Before KIMLIN, OWENS and KRATZ, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 and 3-11, all the claims remaining in the present application.

Claim 1 is illustrative:

1. A method of depositing a thin pliant membrane to be in conformal contact with a light-receiving surface of a

scintillator having a plurality of malleable needle-shaped protrusions extending therefrom, comprising the steps of:

precisely positioning a coupling surface of said membrane in a desired position with respect to said light receiving surface such that the membrane coupling surface is disposed in contact with at least some of said needle-shaped protrusions without causing deformation of said protrusions; and

drawing said membrane down over said scintillator light receiving surface such that portions of said membrane are conformingly disposed around substantially all of said protrusions on said scintillator light-receiving surface without distorting the shape of said protrusions;

the step of drawing said membrane down over said scintillator further comprising the step of applying a substantially uniform differential pressure across said pliant membrane so as to urge said membrane into conformal contact with said light-receiving surface such that said membrane partially deforms around said needle-shaped protrusions to be in intimate contact around each of the malleable needle-shaped protrusions on said light-receiving surface of said scintillator.

The examiner relies upon the following references as evidence of obviousness:

Muller	3,398,811	Aug. 27, 1968
Bennett et al. (Bennett)	3,554,834	Jan. 12, 1971
Bond	3,818,820	Jun. 25, 1974
Galves et al. (Galves)	4,398,118	Aug. 9, 1983
Choinski	4,700,474	Oct. 20, 1987
Englert et al. (Englert)	4,720,426	Jan. 19, 1988
Kwasnick et al. (Kwasnick)	5,132,539	Jul. 21, 1992

Appellants' claimed invention is directed to a method of depositing a thin membrane in conformal contact with the light-receiving surface of a scintillator, which scintillator

has a plurality of needle-shaped protrusions extending therefrom. The method entails drawing the membrane over the scintillator surface such that it is conformingly disposed and in intimate contact around each of the needle-shaped protrusions. According to appellants, the conventional, prior art processes of applying a reflective material to the surface of a scintillator results in a distortion of the needle structure, "causing light traveling through the structure to strike the interior surface boundaries of the needle many thousand more times before the light emerges from the scintillator into the detector array" (page 2 of specification, lines 16-19). Deformation of the needle structure results in degraded imager performance.

Appealed claims 1, 3, 8 and 9 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kwasnick in view of Galves and Muller. Claim 4 stands rejected under § 103 as being unpatentable over the stated combination of references in further view of Bond and Choinski, whereas claims 5-7 stand rejected under § 103 as being unpatentable over the stated combination of references further in view of Bennett. In addition, claims 10 and 11 stand rejected under § 103 as being

unpatentable over Kwasnick in view of Galves, Muller and Englert.[1]

Upon careful consideration of the opposing arguments presented on appeal, we will not sustain the examiner's rejections.

Although the examiner recognizes that Kwasnick does not specifically teach that the cesium iodide deposited layer of the scintillator comprises needle-shaped projections, the examiner reasons that, based on Galves, "[i]t would have been obvious to one having ordinary skill in the art at the time of the invention that the deposited cesium iodide in the process of Kwasnick can be deposited such that it forms 'needle-shaped' projections on the scintillator surface" (page 4 of Answer, first paragraph). As for the claimed requirement of conformingly disposing the membrane around and in intimate contact with the protrusions, the examiner reasons that because Kwasnick discloses that the membrane cover can be within 10 µm of the first surface 34, and that Galves shows a needle

[1] Since appellants state at page 9 of the principal brief that the appealed claims "stand or fall together," we will focus solely upon the examiner's rejection of claim 1 over Kwasnick in view of Galves and Muller.

thickness of 150 µm, "then the membrane must be in conformal contact with the needle protrusions and around each of the needle protrusions" to be within 10 µm of first surface 34 (page 5 of Answer). The examiner further points out at page 8 of the Answer that Galves shows "a needle thickness in the range of 3-150µm to be known."

While the examiner's reasoning is not without logic, it is based upon erroneous facts. Our review of Galves fails to reveal a disclosure of a needle thickness in the range of 3-150 µm. Galves discloses that it was known in the art to use cesium iodide layers having a thickness of from 150 to 200 µm (column 1, line 29), but this is not a disclosure of the height of the protuber-ances or needles, and likewise for the referenced disclosure of a layer thickness of 150 µm at column 2, line 25. In addition, the disclosed ranges of 3 to 8 µm describes the diameter, not the height, of the cesium iodide needles (column 2, lines 46 and 47). Hence, it can be seen that the upper limit of 150 µm used by the examiner refers to the thickness of the layer, not the height of the needle-like protrusions. Also, the lower limit of 3 µm used by the examiner refers to the diameter of the needles, not their

height. Lacking in Galves is the requisite disclosure of needles having a uniform height in excess of 10 µm which would result in the membrane cover of Kwasnick necessarily conforming and being

in intimate contact around the protrusions while being within 10 µm of the first surface 34.

The secondary references applied by the examiner do not remedy the above-mentioned deficiency.

In conclusion, based on the foregoing, the examiner's decision rejecting the appealed claims is reversed.

REVERSED

EDWARD C. KIMLIN Administrative Patent Judge	)	
TERRY J. OWENS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
PETER F. KRATZ Administrative Patent Judge	)	

ECK:clm

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